

## REMARKS

Claims 1 through 12 and 14 through 21 are pending in the application, with Claims 1, 9-10, 17, and 20 having been amended, with Claim 13 having been cancelled. Claims 1, 10, 17 and 20 are the independent claims herein. No new matter has been added. Reconsideration and further examination are respectfully requested.

The abstract of the disclosure is objected to because it is too short. Applicant has therefore replaced the original abstract of the disclosure with a new abstract, as shown on page 2 of the Amendment, above. Applicant therefore requests that the objection to the abstract of the disclosure be withdrawn.

Claims 1-13 and 15-21 are rejected under 35 USC §102(e) as being anticipated by U.S. Patent Application Publication No. US 2004/0218631 A1 to Ganfield ("Ganfield"). Claim 14 is rejected under 35 USC §103(a) as being unpatentable over Ganfield.

Claim 1 is directed to an apparatus. The apparatus has a communication path to exchange information packets and a processor to process the information packets. The apparatus has a buffer pool cache local to the processor to store free buffer handles for the information packets when the buffer pool cache local to the processor is not full. The apparatus also has a non-local memory to store the free buffer handles for the information packets when the buffer pool cache local to the processor is full.

In some possible embodiments of the present Application:

The local cache 140 may be used by the processors 114, 116 in place of the identifier memory module 120. For example, when a packet needs to be stored, the processor 114, 116 may access the local cache 140 to retrieve a buffer ID, instead of accessing the identifier memory module 120 via the identifier access path 122, 124. (Page 8, lines 3-6).

Furthermore, in some embodiments of the present Application:

[T]he local cache 140 may be sized to be able to handle the majority of buffer ID requests, while the identifier memory module 120 may be used as a back-up when the requests become too numerous for the local cache 140 to handle... Anytime the local cache 140 is non-empty ... the processors 114, 116 may use the local

cache 140 to fetch buffer IDs... In some embodiments, when the local cache 140 is non-full (e.g., some buffers are being used too store packets), buffer IDs may be freed to the local cache 140. When the local cache 140 is full, in some embodiments, the buffer IDs may be freed to the identifier memory module 120. (Page 8, lines 17 to page 8, line 5).

The art of record is not seen to disclose or suggest the above features of amended independent claim 1. In particular, the art of record is not seen to disclose or suggest a buffer pool cache, local to the processor, to store free buffer handles for information packets when the buffer pool cache local to the processor is not full; and a non-local memory to store the free buffer handles for the information packets when the buffer pool cache local to the processor is full.

Ganfield relates to implementing packet work area accesses and buffer sharing. In Ganfield, buffer descriptor cache 530 is employed for:

storing each of the buffer descriptors 504, 506, 508. The buffer descriptor cache 530 is created to hold a number N of buffer descriptors on-chip of the network processor system 100. Each of the buffer descriptors 504, 506, 508 contains the buffer descriptor pointers 520, 522, and a length 523 of the corresponding respective buffer 510, 512, and 514. (Paragraph 0032).

In Ganfield, if buffer descriptor cache 530 is full, "the last buffer descriptor slot N of the cache becomes a holding place for the overflow buffer descriptor that is read in." (Paragraph 0036). In other words, in Ganfield, if buffer descriptor cache becomes full, there is no disclosure or suggestion of a non-local buffer descriptor cache in which to store buffer descriptors. Instead, slot N of the buffer descriptor cache is re-used. Accordingly, Ganfield can not be seen to disclose or suggest a buffer pool cache local to a processor to store free buffer handles for information packets when the buffer pool cache local to the processor is not full; and a non-local memory to store the free buffer handles for the information packets when the buffer pool cache local to the processor is full.

Furthermore, independent claim 1 as amended recites "a non-local memory to store the free buffer handles for information packets when the buffer pool cache local to the processor is full". This amended language of claim 1 comprises at least some analogous language to language found in a dependent claim 14, a method claim, language of "freeing the buffer handle to a non-local memory when the local buffer pool cache is full." The Office Action states, on

page 5, regarding claim 14, that "Ganfield is silent as to the method of claim 12, further comprising freeing the buffer handle to a non-local memory when the local buffer cache is full. However, freeing up a buffer handle to a non-local memory when the local buffer cache is full is obvious for the benefit of freeing up system resources." Applicant respectfully traverses the above finding.

The standard of review applied to findings of fact is the 'substantial evidence' standard under the Administrative Procedure Act (APA). §2144.03. Applicant respectfully requests, under the 'substantial evidence' standard, as detailed in M.P.E.P. §2144.03(C), that documentary evidence be produced of disclosing a freeing of a buffer handle to a non-local memory when the local buffer cache is full, be produced in the next Office Action, or the rejection of both Claims 1 and 14 be withdrawn. Furthermore, Applicant respectfully requests, as detailed M.P.E.P. §2144.03(C), documentary evidence, under the 'substantial evidence' standard, supporting the finding that freeing a buffer handle to a non-local memory when the local buffer cache is full is obvious for the benefit of freeing up system resources, be produced in the next Office Action, or the rejection of both Claims 1 and 14 be withdrawn.

The remaining art of record has been reviewed and is not seen to remedy the foregoing deficiencies in Ganfield. Therefore, the art of record, taken in any permissible record is not seen to disclose or suggest a buffer pool cache local to a processor to store free buffer handles for information packets when the buffer pool cache local to the processor is not full; and a non-local memory to store the free buffer handles for information packets when the buffer pool cache local to the processor is full.

In view of the foregoing, amended independent claim 1 is believed to be in condition for allowance. Claims 2-9 depend upon claim 1, and are therefore also believed to be allowable for at least the foregoing reasons.

Amended claim 20 relates to an apparatus that has a network processor having a communication path to exchange information packets. The network processor has a processor to process information packets. The network processor has a buffer pool cache local to the processor to store free buffer handles for information packets when the buffer pool cache to the processor is not full; and a non-local memory to store the free buffer handles for information

packets if the buffer pool cache local to the processor is full. The apparatus also has an asynchronous transfer mode interface.

The art of record is not seen to disclose or suggest the above featured of amended independent claim 20. In particular, the art of record is not seen to disclose or suggest a buffer pool cache, local to the processor, to store free buffer handles for information packets when the buffer pool cache local to the processor is not full; and a non-local memory to store the free buffer handles for the information packets when the buffer pool cache local to the processor is full. In view of the foregoing, amended independent claim 20 is also believed to be in condition for allowance. Claim 21 depends upon claim 20 and is therefore also believed to be allowable for at least the foregoing reasons.

Claim 10 is directed to a method. In claim 10, an information packet is received. A buffer handle, associated with the information packet, is fetched from a local buffer pool cache if the local buffer pool is non-empty. The buffer handle is fetched from a non-local memory when the local buffer pool cache is empty.

In some possible embodiments of the present Application:

anytime the local cache 140 is non-empty ... the processors 114, 116 may use the local cache 140 to fetch buffer IDs. In some embodiments where the local cache 140 may be capable of handling all buffer ID requests all of the time, the network device 100 may not require the identifier memory module 120 or its attendant access paths 122, 124." (Page 6, lines 23-27).

In some embodiments, as described herein, the ingress processor 114 retrieves necessary buffer IDs from the local cache 140 unless the local cache 140 is empty. The ingress processor 114 may then fetch the buffer associated with the retrieved ID from the ingress-dedicated buffer memory module 130a." (Page 10, lines 17-20).

The art of record is not seen to disclose or suggest the above features of independent amended claim 10. In particular, the art of record is not seen to disclose or suggest that a buffer handle, associated with an information packet, is fetched from a local buffer pool cache if a local buffer pool is non-empty, and that the buffer handle is fetched from a non-local memory when the local buffer pool cache is empty.

As discussed above, Ganfield relates to implementing packet work area accesses and buffer sharing. In Ganfield, referring to FIG. 5B:

there is shown an exemplary buffer descriptor cache generally designated by reference character 530 for storing each of the buffer descriptors 504, 506, 508. The buffer descriptor cache 530 is created to hold a number N of buffer descriptors on-chip of the network processor system 100. Each of the buffer descriptors 504, 506, 508 contains the buffer descriptor pointers 520, 522, and a length 523 of the corresponding respective buffer 510, 512, and 514. An offset 524 that equals an offset into the packet is calculated for the respective buffers 510, 512, 514 using length 523. Cache 530 contains packet header information 526 including ID and length L of the packet. The first buffer descriptor 504 is read into the buffer descriptor cache 530 when the packet is loaded into the PWA, and the additional buffer descriptors 506, 508 are read in as needed. (Ganfield, paragraph 32).

In other words, in Ganfield, the buffer descriptor cache 530 is described, and various descriptors of packets are stored within the buffer. However, nowhere in the above-cited passage is there a disclosure or a teaching of fetching buffers from a non-local memory when a local buffer cache is empty. In the above-cited passage, cache 530 receives buffer descriptors 504, 506, 508, but there is no disclosure of fetching buffer handles from a local buffer pool or a non-local buffer pool as a function of whether the local buffer pool cache is empty or non-empty.

Accordingly, Ganfield cannot be seen to disclose or suggest that a buffer handle, associated with the information packet, is fetched from a local buffer pool cache if the local buffer pool is non-empty, and that buffer handle is fetched from a non-local memory when the local buffer pool cache is empty.

The remaining art of record has been reviewed and is not seen to remedy the foregoing deficiencies in Ganfield. Therefore, the art of record, taken in any permissible combination, is not seen to disclose or suggest that a buffer handle, associated with the information packet, is fetched from a local buffer pool cache if the local buffer pool is non-empty and that the buffer handle is fetched from a non-local memory when the local buffer pool cache is empty.

In view of the foregoing, amended independent claim 10 is believed to be in condition for allowance. Claims 11-12 and 14-16 depend upon claim 10 and are therefore also believed to be allowable for at least the foregoing reasons.

Furthermore, dependent claim 12 recites "freeing the buffer handle to the local buffer pool cache." The Office Action states, on page 5, regarding claim 12, that Ganfield teaches "freeing the

buffer handle to the local buffer pool cache [*must be done* when a packet is transmitted out of the processor, the packet must leave the buffer where it was stored, and the corresponding buffer handle must be freed up]." (Emphasis added). Applicant respectfully traverses the rejection. Applicant respectfully states that the Office Action is taking *de jure* Official Notice of an inherency, as the Office Action has characterized cited claim language as a "must" and, furthermore, without on-the-record evidentiary support.

However, "the notice of facts beyond the record which may be taken by the examiner must be 'capable of such instant and unquestionable demonstration as to defy dispute...' As the court held in Zurko, an assessment of basic knowledge and common sense that is not based in the record lacks substantial evidence." M.P.E.P. §2144.03(A). Therefore, Applicant respectfully requests, under the substantial evidence standard, as detailed in M.P.E.P. §2144.03(C), that documentary evidence be produced in the next Office Action that freeing a buffer handle to a local buffer pool cache *must* be done when a packet is transmitted out of a processor.

Moreover, there is an additional, separate, and distinct evidentiary burden that must be met by the Office Action to support the above finding of inherency. According to M.P.E.P. §2112.IV, "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be recognized by persons of ordinary skill'... In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." (Emphasis in *original*). Applicant respectfully states that the Office Action has not met its evidentiary burden in regards to producing this technical or legal line of reasoning. Furthermore, Applicant can conceive of situations and counter-examples wherein local buffer handles are *not* freed to the local buffer pool cache when a packet is transmitted out of a processor, such as when the processor, such as network processor 102 of Ganfield, keeps a copy of the transmitted packet in a local buffer for future processing. (For instance, Ganfield, paragraph 41).

Therefore, Applicant respectfully states that the finding by the Office Action of freeing a buffer handle to a local buffer pool cache *must* be done when a packet is transmitted out of a processor is both lacking evidentiary support and is erroneous, and therefore this finding should be withdrawn in the next Office Action, and that the rejection of claim 12 be withdrawn, as well.

Amended independent claim 17 relates to an apparatus that has a storage medium having stored thereon instructions that, when executed by a machine, resulting in the following: an information packet is received, and a buffer handle, to be associated with the information packet, is fetched from a local buffer pool cache a if the local buffer pool is non-empty; and the buffer handle is fetched from a non-local memory if the local buffer pool cache is empty.

The art of record is not seen to disclose or suggest the above features of independent amended claim 17. In particular, the art of record is not seen to disclose or suggest that a buffer handle, to be associated with an information packet, is fetched from a local buffer pool cache a if the local buffer pool is non-empty; and the buffer handle is fetched from a non-local memory if the local buffer pool cache is empty.

In view of the foregoing, amended independent claim 17 is also believed to be in condition for allowance. Claims 18 and 19 depend upon claim 17 and are therefore also believed to be allowable for at least the foregoing reasons.

### CONCLUSION

Accordingly, Applicants respectfully request allowance of the pending claims. If any issues remain, or if the Examiner has any further suggestions for expediting allowance of the present application, the Examiner is kindly invited to contact the undersigned via telephone at (203) 972-4982.

Respectfully submitted,

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